"It has never been more important than it is today for our children to have information technologies available in their classrooms so that they can acquire high tech skills that will prepare them to take their places in the world-wide market.

South Carolina's economic growth and stability depend, in large part, on our ability to match the future labor market needs with a world-class workforce of highly competent laborers, technicians, and professionals for the 21st century."

David M. Beasley
Governor
State of South Carolina

South Carolina Department of Education
http://www.state.sc.us/sde/

How to Use Connecting Learners: The South Carolina Educational Technology Plan

- As a guide for educators, schools, and districts to develop personal and institutional technology plans that ensure the effective use of information technology to support student learning.
- As a description of South Carolina's intent to raise all performance indicators in education.
- As a constantly renewing resource for information technology applications in our public schools.

We present this plan in two formats, a print version and a web-based version, to reflect the rapidly changing world of learning and technology.

This print version provides recommendations and an overview of the information resources and tools that will enable each school and district to continue moving forward in the implementation of technology. To make this document more beneficial to users, web sites containing relevant information have been placed in the margins.

For the most current, accurate links, this plan is available on the South Carolina Department of Education's web site.

Vision is the art of seeing things invisible.
Jonathan Swift

A Scenario: Schools, Technology, and the State's Economy

The learning environment is tied to the real world, where educators, students, parents, and community--local and worldwide-are valued as important players.

Troy, Juanita, and Cheryl, three biology students whose parents earn their livings fishing for shrimp off the coast of South Carolina, decide to investigate what can be done to bolster the declining shrimp harvest in their area. Gathering in a research nook of the school's library media center one afternoon, they spend an hour tele-interviewing a natural resources expert from the state Wildlife and Marine Resources Department who is knowledgeable about shrimping in South Carolina.

This expert agrees to link the students electronically to documents outlining existing state plans and initiatives. They then begin info-grazing with their hand-held electronic devices. A user-friendly software program prompts them to pose clear questions. They ask for strategies that have proven effective elsewhere in the world where fishing is critical to the economy. Routed through a global electronic highway system, in moments they begin to note news stories, videos, and resources and download them into their computers for later review. In a matter of hours they have expert testimony, field data, and anecdotes from other fishing communities.

Thanks to the global information network, the three students are in constant communication with their classmates and transmit their data to their school's local area network (LAN) for review by their peers. At their classmates' suggestion via e-mail, Troy, Juanita, and Cheryl go to the docks and interview shrimpers on how they feel their harvests could be improved. Including digital still pictures and videos of the shrimpers' interviews, the shrimp beds, boats, and coastal area of South Carolina, they once again connect to their school's LAN and share their information with their fellow classmates

After the information is received, their classmates begin the editing process, incorporating computer-generated simulations using the computer editing suite available in the library media center. The three students return to school and download pictures of shrimp indigenous to South Carolina's waters from the South Carolina Department of Wildlife's Internet web page.

Online encyclopedias, general periodical databases, and CD-ROM references in their school library media center are used to expand the information the three students have already collected. These pictures, information, and videos are combined with the information from their tele-interviewing into a multimedia document. The students then go to the production area of the school and produce an informative presentation which is then distributed via SCETV satellite to other educational institutions and appropriate state agencies.

The following week a two-way video conference is scheduled to bring together interested students, experts in marine biology, and state legislators to discuss potential legislation to remedy barriers to the shrimp industry's survival. Troy, Juanita, and Cheryl have truly made a difference in South Carolina's and their families' economic future.

A **mind stretched to a new idea,**
never goes back
to its original dimensions.
Oliver Wendell Holmes

Mission, Vision, and Beliefs

Belief Statements

1. Student learning is the focus and goal for all technology applications in our schools.
2. Technology is a tool and a means to achieve specific goals - technology is not the goal nor the end to be achieved.
3. Every student must be assured equity of access to all available technologies regardless of circumstances.
4. Students must become information literate if they are to face the challenges and enjoy the opportunities of working and living in a global economy and society.
5. Students will become lifelong learners and active participants in our democratic society by effectively and critically using technology applications.
6. Professional development for current and pre-service educators in the use and integration of instructional technologies is essential for student achievement.
7. Truly collaborative partnerships with parents and businesses are essential for the use of instructional technology to have the impact on student learning envisioned by South Carolina.
8. We must break the cycle of illiteracy by working with families and communities in South Carolina using available technologies and forming collaborations with state agencies and educational institutions

The mission of the South Carolina State Department of Education is *to* provide *leadership and services to schools and communities to enable all students, regardless of circumstance, to achieve world class academic standards.*

Our vision is that the children of South Carolina will be proficient in the use of technology by focusing on building knowledge and becoming life long learners. No longer will classrooms be confined by time and space. Our children will truly be connected learners, sharing, exploring, and evaluating information through many forms of interactive technology. The result of learning in this technology connected classroom will be adults who successfully live, work, and raise families into and through the next century.

We believe that high standards for student achievement are the heart of education reform in South Carolina, driving the goals we set for learning and directing every other aspect of what we do to support teaching and learning in our classrooms. *Connecting Learners: The South Carolina Educational Technology P/an* sets high expectations for our students, educators, and educational systems.

We celebrate learning as a dynamic, stimulating, and empowering process that continues throughout our lives.

Technology Planning

Curriculum and pedagogy drive technology applications in South Carolina schools. Technology is not an answer waiting for a question. Rather, it is a tool and process by which educators can continue to help children learn better. To accomplish this, technology plans and revised updates must be developed in a process that involves the active participation of representatives from all levels of district and school personnel as well as parents, students, businesses, and other citizens.

National Center for Technology Planning
http://www.nctp.com/topics. html

While each district and school is unique, some general guidelines should be considered in the planning process. There are numerous resources for districts and schools involved in technology planning which can meet their particular needs at whatever level of planning or implementation they currently are working. These include templates, guides, and sample plans found on the Internet. For example, The Key *Elements of State Planning for Educational Technology,* provided by the Southern Regional Education Board, has been adapted for use by districts and schools and is found in this section.

National School Boards Association
http://www.nsba.org/sbot/toolkit/

Southern Regional Education Board
http://www.sreb.org/

A Framework to Help Schools and Districts to Chart Their Course in Technology Planning

Another planning tool for districts and schools is *Technology in American Schools: Seven Dimensions for Gauging Progress - A Policymaker's Guide.* This document serves as a framework that focuses on the "combination of essential conditions that make it highly probable that the school will be able to effectively use technology to add a high degree of value to student learning." The seven dimensions included in the framework are interdependent components of a system, and it is anticipated that the educational community, technology coordinators, policymakers, and researchers

Milken Exchange on Education Technology
Technology in American Schools: Seven Dimensions for Gauging Progress - A Policymaker's Guide
(full report)
http://www.milkenexchange.org

Education Technology
7 Dimensions of Progress

1. Learners
2. Learning Environments
3. Professional Capacity
4. System Capacity
5. Community Connections
6. Technology Capacity
7. Accountability

will use this framework as:

- A vision that will define expectations for the public investments in K-l 2 learning technology.
- A self-assessment tool that assists schools, districts, and states to gauge their own progress toward that vision.
- A planning tool for strategizing how to bring technology and telecommunications into their systems in ways which improve student learning.
- An accountability system for tracking the return on public investments in education technology.
- A research agenda that will help guide studies of how and under what conditions technology is an effective tool for learning.

Each dimension includes a list of the various questions the public, policymakers, educators, community members, and business and industry representatives should ask - and educators should answer - as technology and telecommunications are deployed in K-l 2 schools.

(Source: Milken Exchange on Education Technology, Technology *in American Schools: Seven Dimensions for Gauging Progress - A Policymaker's Guide)*

Technology Plan Checklist

To further assist schools and districts in technology planning, the following checklist has been developed to ensure that technology plans are comprehensive.

Evidence of school technology planning is indicated by:

- Strategies to use all information technologies to improve student learning.
- Instructional technology being used as a link to curricula and standards.

- Teachers using technology resources as instructional tools.
- Professional development opportunities for all faculty and staff members.
- An assessment plan that evaluates telecommunications services, hardware and software, and student results.
- A technology budget that is sufficient to acquire and maintain hardware and software and support professional development.
- An evaluation and/or revision process to enable the school to monitor progress and respond to new developments and opportunities.

We are now at a point that we must educate our children in what no one knew yesterday, and prepare our schools for what no one knows yet.
Margaret Mead

Evidence of district technology planning is indicated by:

- A technology vision that supports the integration of technology into the curriculum.
- The use of technology to reach defined educational goals.
- The identification of technology resources currently available and those budgeted for acquisition.
- Multi-year planning that spans more than one year.
- Descriptions of how technology supports student learning.
- Plans to support staff development that ensure effective use of technology.
- Assessment of the impact of the use of technology.

Good technology plans are vital to ensure that instructional benefits to students are maximized.

Recommendations

1. It is recommended that each school and district revise and/or update a comprehensive technology plan that is incorporated into the district strategic plan.
2. It is recommended that district and school technology readiness be included as a success indicator on the Education Accountability Act's annual report card.

The Key Elements of Effective District Planning for Educational Technology: A District Technology Plan Template

Adapted with permission from The Key Elements *of Effective* State *Planning for* Educational Technology, Southern Regional Education Board

Planning is critical if technology is to have a positive impact on education, but the job of technology planning is becoming more and more challenging. How can planners be effective in a constantly changing environment? You can expect to see changes in the technology industry and the education environment; therefore, to remain effective your plan must have the built-in flexibility to change with the complex environment in which it must function.

Throughout this planning guide, educational technology refers to any electronic and information technology used to support or aid teaching and learning. This might include, for example, a distance learning network, instructional courseware, or laserdisc players for classrooms.

Stage One: Preparing

The preparation for planning can be as important as planning itself. A major mistake is to start the planning process before all the major ingredients are in place. No ingredient is more critical than the strategic vision.

Strategic Vision: What is your vision, how will you achieve it, and how will you paint the picture for the school community?

Your ability to create a vision and communicate that vision to the public will be important. You must show the school community what education will look like after the technology is in place. You must describe to the public, in terms easily understood, the new educational environment that will result from the integration of technology and education. This is particularly important if you intend to use technology as a major component of a school restructuring effort.

Some of the more common questions you will hear from the public include:

- What will education look like?
- How will education change because of your plan?
- What will be different?
- How will the school environment change? (For example, what will the school day or year now involve?)
- How is technology going to affect the education of individual children?
- How will you measure student achievement?

- How will technology affect the role of teachers?
- How will stakeholders be affected?
- How will educational technology help improve education?
- How much will your plan cost, and is it worth the expense?
- How does the plan build on what already exists?
- What research exists to support the plan?
- How will you prove at some point in the future that you have done what you plan to do?

A good public relations campaign, including a strategic media plan, will help you achieve your vision. Public forums, such as local meetings and technology demonstrations, can be beneficial parts of this campaign. Activities at these meetings could differ according to the interests of the community involved.

Each time you share your vision of technology with the community, you will come one step closer to gaining support and understanding. As one state planner put it, "Support for the plan must begin with the grassroots."

Goals and Objectives: What do you hope to accomplish through the use of educational technology in your district?

One important task in the planning process is to clearly define your goals and objectives for educational technology. What you plan to accomplish will be limited by such factors as funding and human resources. You should consider these and other constraints when establishing your goals and objectives. Unrealistic promises can lead to doubts and a loss of support among your staff, teachers, local government, and the voting public. If clearly defined, your goals and objectives will drive your remaining planning decisions.

Consider the following questions when establishing goals and objectives: How will technology support your district's educational goals?

- What do you want the district educational technology plan to do?
- What can you realistically hope to accomplish?
- What are your short-term and long-term goals?
- What are your instructional objectives?
- What are your administrative objectives?

- How will you link instructional and administrative objectives?
- What is your evaluation plan?
- What are your staffing needs?

Technology is most effective when it is used to fulfill an educational need or objective. Goals and objectives need to be defined not only for the plan itself, but also for each of its sub-components. For example, as a sub-component of your plan, your professional development program will require a clear set of goals.

Closely tied to your goals and objectives will be the evaluation criteria used to measure whether established goals and objectives have been met. For this reason, it is important to begin planning for the evaluation process while you are defining your goals and objectives. Of primary consideration is how you will know that you have reached your objectives. The use of an independent third party can help lend credibility to the evaluation process. (The evaluation process is discussed more fully in Stage Three of this guide.)

Needs Assessment: What is your district's current status?

A review of your district's current educational and technology status may help you determine your needs and focus your planning efforts. There are several things to consider when assessing your needs. These are:

- The varying technological sophistication of the schools in your districts.
- The inventory of existing technologies and how they are being used.
- The ability and availability of staff to help you plan.
- The expertise of school district staff to plan for educational technology.
- The impact state laws and regulations may have on your educational technology plan.

It is important to remember that educational technology is more than computers. Many technologies, such as telecommunications technologies, satellite networks, videodisc players, and instructional television could meet your needs. Have you addressed all technologies?

Scope: What will your plan cover?

A clearly defined scope for the plan will help eliminate unrealistic expectations. It is helpful to define what the plan will, and will not, cover. Your answers to the following questions may help define your plan's scope:

- Will the plan cover both instructional and administrative technologies?

- What technologies are to be covered by the plan?
- Will you ask schools to draft their own technology plan? If so, will you provide them with guidelines for writing these plans?
- Should your plan define the technology standards for old as well as new facilities? How about old technologies?

Depending on your situation, it may be wise to plan simultaneously for instructional and administrative technologies, since these systems are becoming increasingly interdependent. For example, in an integrated system, these technologies can be used to efficiently produce accountability reports.

Defining Stakeholders: Who has a stake in educational technology planning?

The identification of stakeholders is a major consideration for the educational technology planner. Stakeholders are people who may benefit from or be impacted by your plan's success. Stakeholders can either be a great source of support or a roadblock to progress. Experts agree that there are three things to remember when dealing with stakeholders - identify, inform, and involve. When identifying stakeholders ask yourself:

- Who has the power to accept or reject the plan?
- Who can influence public acceptance of the plan?
- Who can help gain support for the plan?

There are many categories of stakeholders in a district. These may include: teachers, parents, local governing bodies, chambers of commerce, school board members, business leaders, special interest groups, students (K - adult), school administrators, school library media personnel, and associations.

Keeping stakeholders informed is critical to maintaining their support, whether you choose to communicate through meetings, newsletters, or personal correspondence. You may again find that a carefully planned public relations effort will be beneficial.

There are many ways to invite stakeholder participation. The level of involvement may depend on personal interests, time limitations, and technical expertise. Whether a stakeholder serves on an advisory group, co-chairs a task force, or prefers simply to be kept informed of your progress, you must capitalize on his or her individual strengths to gain broader support for the plan.

Organizational Structure: How will you organize those involved in the planning?

Educational technology planning can be a very complex task. You cannot plan in a vacuum, and you will need assistance. You must decide how best to manage and organize this assistance. There are many different alternatives: a large structure with several sub-committees and task groups or a small structure with one planning committee. For example, some districts have formed a task force made up of influential and respected citizens. Still others have established multiple advisory groups representing major stakeholders in the district to assist a core committee.

Different types of organizational structures have their merits. It is your challenge to choose the one that will be most effective and productive. When designing an organizational structure you may want to consider:

- How will you gain stakeholder input?
- How will individuals be selected, and what will their responsibilities be?
- What are the tasks you want to carry out?
- How will the input of all those involved be brought together?

Funding: How and when will the plan be funded?

Funding is critical to the success of your plan. It is important to consider not only how the plan will be funded, but when it will be funded. Your plan will most likely progress in phases. Without the funding to complete each phase on time, the plan could be stalled and public support lessened. For this reason, it will be essential to determine the funding schedule.

Equity: How will you promote equity - both in planning for educational technology and integrating it into education in your district?

Equity is a critical consideration for the district educational technology planner. It can be defined in many ways, depending on your district's current status and objectives for education. You may, for example, define equity in terms of equal educational outcomes for students in your school district. You might also define it in terms of an equal distribution of technology funds. However it is defined, equity must be considered when planning.

Technology has the potential to promote equitable access and opportunity. For example, state networks can give all students access to the same resources, and distance learning can offer all students the opportunity to take the same classes. Without proper planning, however, investments in technology can further separate the *haves* and *have nots* in your district.

You may want to consider:

- How will funding be distributed?
- How will you help less advantaged schools plan for and use technology?
- Will you have to allocate additional staff time for assistance?
- Do you hope to establish a standard minimal technology base in all schools?
- What will you do about those schools that have already invested in technology?

Professional Development: What kinds of training considerations are needed for faculty and staff?

Staffs ability and willingness to use technology depends on their familiarity and level of comfort with it. Professional development implies more than training - it also refers to professional growth. The educational technology planner must carefully consider how best to train staff to use technology effectively and how to provide staff with the guidance they need to adjust to a changing educational environment. Experience has shown that many factors make this task difficult, including the lack of time, money, motivation, and the capacity to provide for ongoing technical assistance within the schools.

Teachers must not only know how to use various technologies but also must have a clear understanding of how technology changes the learning process. Professional development should be used to help teachers develop teaching strategies and to explore the impact technology will have on their teaching methods.

When planning for staffs professional growth, you will need to address the following questions:

- How can teachers be given the time they need to prepare to use technology?
- Is there a medium that encourages peer communication among staff in your district?
- How will technology impact education?
- How will the addition of technology change the way students are taught?

Experts offer the following suggestions to make training more effective:

- Train staff in their own building, on their own equipment, to meet their own needs.

- Plan for training to be continuous.

Administrators will need training as well. With the addition of new technologies, administrators will need to know the pros and cons of various technologies, how to determine whether desired learning outcomes have been reached, and how to use technology to run their buildings.

Vendors and Outside Consultants: How can you establish a beneficial relationship with vendors and consultants?

Vendors and consultants can help to ensure the success of your plan. However, before involving vendors and consultants in the planning process, decide what you want them to do. If beneficial relationships are established, vendors and consultants can be good sources of helpful information and advice, while ultimate planning decisions are made by the school district. Ask yourself these questions before involving vendors and consultants:

- How will you evaluate hardware, software, and staff development?
- How will you deal with maintenance and replacement issues?
- Are state contracts and procurement a good strategy for your district, or would local level procurement be better?
- Would volume purchasing reduce your costs?
- Would leasing some items be beneficial?

Stage Two: Writing

There is no one way to write a plan. It will require much time and effort. The plan will be your principle means of communicating educational technology goals to decision makers and the public. For this reason, it should be organized and clear. Diagrams and illustrations can be used to effectively explain complex concepts not commonly understood by the general public.

Experts have identified several key elements generally included in educational technology plans:

- **Vision:** The picture you will paint for the public. What will the classroom look like when technology has been introduced?
- **Mission Statement:** An outline of challenges and an explanation of intended actions.
- **Goals and Objectives:** An identification of your expectations.
- **Strategy:** A statement of how you plan to accomplish your goals and objectives.

- **Scope:** The limits of your plan.
- **Training and Staffing Requirements:** A description of the human resources and training necessary to successfully implement your plan.
- **Evaluation Criteria:** Tools and techniques for judging the success of your plan.
- **Technical Standards:** The minimum requirements for each technology to be purchased.
- **Cost Estimates:** A forecast of your plan's cost.
- **Timeline:** A schedule outlining the steps of the plan with timetables for completion.
- **Glossary of Terms:** Definitions of technical jargon.
- **Upgrading, Maintenance, and Obsolescence Strategies:** These strategies may be developed as a result of contract negotiations with vendors. For example, a replacement schedule forecasting anticipated replacements for outmoded hardware might be included.

Some additional sections that have been successfully added to some district plans include: *Answers to Frequent/y Asked Questions* and *A Directory of Contact Phone Numbers.*

Stage Three: Evaluating

Evaluation: How will you judge the effectiveness of your plan?

A regularly scheduled evaluation of the plan, at least every 12 months, can help you monitor successes and remain on target. To lend credibility to the evaluation, you may consider the use of an independent third-party reviewer. A major concern is the plan's ability to reach established objectives and goals. Given changes in the education environment and new technological developments, you may find it necessary to change your plan periodically. Thus, you may want to consider how changes to the plan can be made and who can make and authorize these changes.

As mentioned in Stage One of this guide, your evaluation criteria should be established simultaneously with your goals and objectives. This will help significantly when you begin measuring your plan's successes. Establishing evaluation criteria before evaluating the plan not only leads to a more accurate assessment of the plan's effectiveness but is also another way to achieve credibility with the public, since they will know up front what the plan is intended to achieve.

For your evaluation to be effective, you will need a way to collect the data and information that you need. You may, for example. want to collect status reports from each school. This will require a certain degree of organization and staff time. You must

plan accordingly.

An important product of any evaluation is learning under what conditions different technologies work best. This will be extremely helpful in planning professional development efforts and assisting districts in their planning efforts.

Summary: Tips from the Experts

The purpose of this document has been to guide the efforts of those involved in district educational technology planning. It has done its job if you were: forced to question the way you plan; stimulated to think of something you had not previously considered; or motivated to become more actively involved in educational technology planning in your district.

It is important to remember that technology needs to be in place before training can begin. If individuals are trained before equipment is installed, chances are the training could be forgotten.

Finally, educational technology planning experts offer the following advice:

- To further illustrate its potential, use technology to present your plan, but do not let technology become the focus of your presentation.
- Expect to make changes to your plan. Build in flexibility and be prepared to make many tradeoffs before reaching your objectives.
- Be creative when seeking solutions to problems.
- Consider all your options - not just the first or most apparent.
- Borrow from what has been done before. For example, review the plans of other districts and take advantage of commercially developed planning instruments.
- Plan for unexpected developments. Always be ready with a Plan B.
- Use graphics to illustrate concepts in your plan.
- Showcase and build upon your successes.
- Involve all stakeholders as appropriate.
- Plan with the future in mind. Rapid changes in the information industry may require you to incorporate a completely new technology into the plan.
- Use pilots only if you know you can be successful.
- Build training and funding into a realistic timeline.
- When beneficial seek partners from Industry and higher education.

- Consider all sources of funding as resources for educational technology.
- Plan for maintenance and upgrading of obsolete equipment and materials.

Keeping higher education and industry involved in or aware of your plan can prove very helpful. This interaction could lead to collaborative efforts benefiting your district in the future. For example, working with colleges of education may help them better prepare future teachers to meet your expectations for teaching with technology.

Checklist: Does **your plan**

- Coincide with state educational goals, regulations, and Connecting Learners: *The South Carolina Educational Technology Plan?*
- Address the issue of state accountability requirements?
- State a means for using technology for student achievement and reports of progress?
- Address both instructional and administrative technology?
- Designate a central authority for its implementation and evaluation?
- Define the school and district roles in making the plan work?
- Include a professional training and development component?
- Have a mechanism built in for change?
- Show a link between your educational objectives and technology?
- Address equity?
- Address upgrades, obsolescence, and maintenance?
- Address the need for a technology facilitator/team in the schools?
- Allow for an ongoing review and reporting process?
- Establish a reasonable timeline and scope?